

ABSTRACT OF THE DISCLOSURE

A process for the patterning of a desired substance on a surface includes: (i) charging a particle formation vessel with a compressed fluid; (ii) 5 introducing into the particle formation vessel a first feed stream comprising a solvent and the desired substance dissolved therein and a second feed stream comprising the compressed fluid, wherein the desired substance is less soluble in the compressed fluid relative to its solubility in the solvent and the solvent is soluble in the compressed fluid, and wherein the first feed stream is dispersed in 10 the compressed fluid, allowing extraction of the solvent into the compressed fluid and precipitation of particles of the desired substance; (iii) exhausting compressed fluid, solvent and the desired substance from the particle formation vessel at a rate substantially equal to a rate of addition of such components to the vessel in step (ii) through a restrictive passage to a lower pressure whereby the compressed fluid 15 is transformed to a gaseous state, and wherein the restrictive passage includes a discharge device that produces a shaped beam of particles of the desired substance at a point beyond an outlet of the discharge device, where the fluid is in a gaseous state at a location before or beyond the outlet of the discharge device; and (iv) exposing a receiver surface to the shaped beam of particles of the desired 20 substance and selectively depositing a pattern of particles on the receiver surface.